Process and Integration Technologies for InP ICs

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Abstract

Indium phosphide HBT technology has evolved over the past fifteen years into a versatile technology to demonstrate a variety of very high frequency integrated circuits. This versatility is achieved from several choices of heterostructure epitaxial materials and a variety of semiconductor processes. This paper summarizes the basic material structures and fabrication processes leading to this versatility along with the basic IC fabrication process and enhancements to it. These choices have enabled organizations world-wide to demonstrate not only the fastest ICs in any technology but also low power operation and ICs applicable to OC-768 fiber optic communications and satellite communications along with the military electronics.